Integrated Design Capability / Instrument Design Laboratory

Ocean Color Experiment Ver. 2 (OCE2)

~ Kickoff Presentation ~

Closing Remarks

Tammy Brown

April 27, 2011

Technical Report Clean Up

Integrated Design Capability / Instrument Design Laboratory

Actions we will undertake Monday, April 30 to close the OCE2 design:

1. Consider splitting the mechanism control box into 2 halves (for the mechanisms within the tilt cradle and those on the scanning platform)
2. Consider moving the MEB off of the tilt cradle
3. Consider moving the detector digitizer boxes off of the tilt cradle
4. Consider the amount of flexible harness across the tilt axes
5. Document the data rate following instrument compression (in hardware) and CCSDS packet headers
6. Complete documentation of broadband coating efficiencies
7. Account for harnesses mass
8. Complete our assessment of the current TRL
9. Complete our documentation of FPGA algorithm (firmware) costs for the custom developed hardware
10. Scrub our final report to ensure that there is no sensitive information remains, and that there are no GSFC-specific approaches (that could not be reasonably be assumed for a vendor, e.g. software reuse)

Delta Study Actions

Delta Actions we will undertake Tuesday & Wednesday, May 1 & 2:

a) We will begin with the final configuration of OCE2 and made edits
b) Replace 2 channels with 32 atmospheric detector channels – they are copies of the original 144 channels, with smaller diameter fibers
c) Electrical boxes will be resized for the MEB and digitizer boxes
d) There will be a larger radiator that needs to be incorporated

Delta Study Configuration

OCE2 Configuration	Redundancy Approach	Fore-optics Design	IDL Products	Post-Study Cost 'Massage' by Martha
WE HAVE AN AGREEMENT FOR THIS	MUST BE CONFIRMED	MUST BE CONFIRMED		
Primary study: 144 channels	Redundant mechanism control	Singlet	Complete MEL + parametric cost product	
144 channels	Single string mechanism control	Doublet		Modular edit of cost estimates
144+32 channels	Redundant mechanism control	Singlet		Modular edit of cost estimates
Delta study: 144+32 channels	Single string mechanism control	Doublet	Complete MEL + parametric cost product	

What you will Find in your Final Report

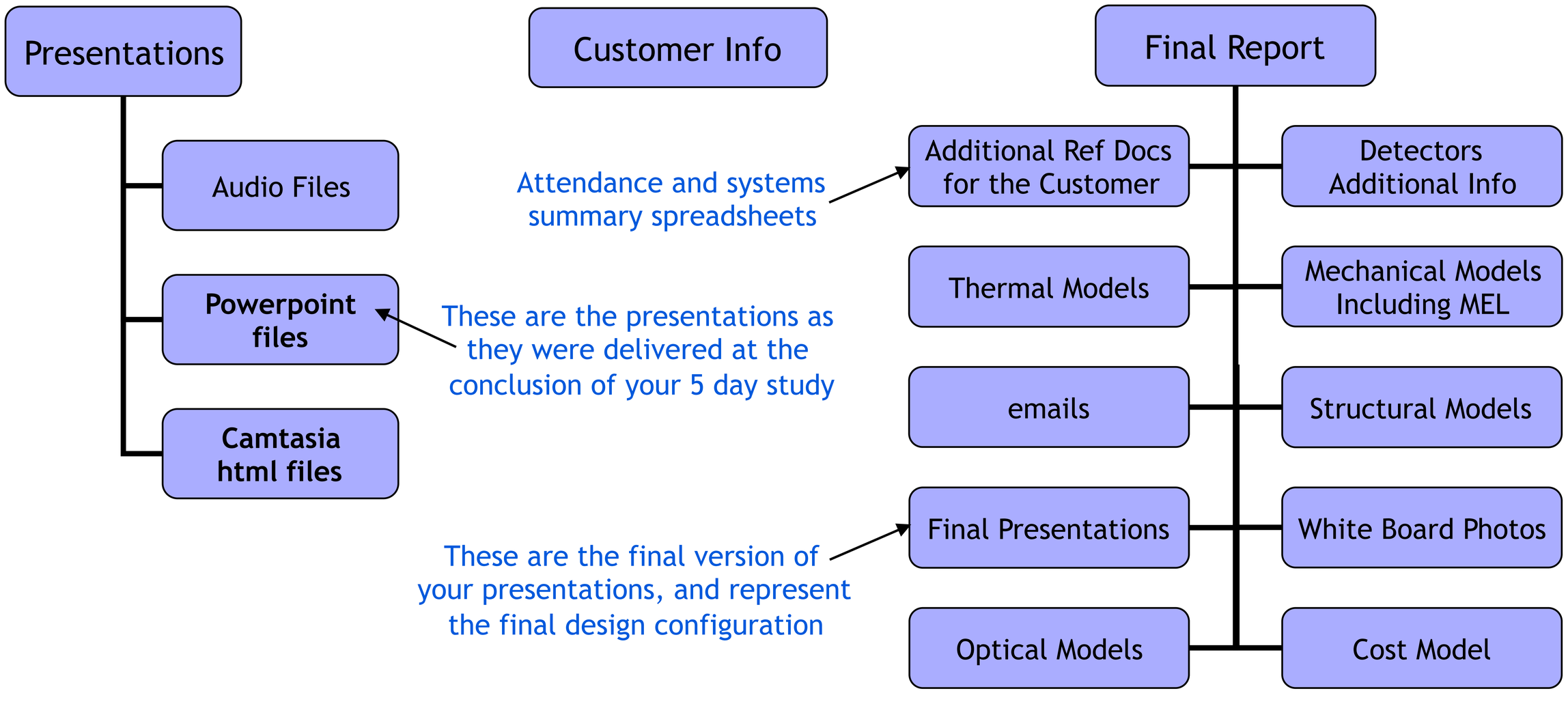
- **Final version of all engineering discipline powerpoint presentations**
  - The systems presentation gives an overview of your study and is the first document your team should read to get a summary of your study results
- **All the models we've created for your instrument**
  - Mass model in Excel
  - Mechanical models
    - We have created your mechanical model in SolidWorks; we'll save that in a STEP file as well
    - We have also saved this model in an eDesign format that you can manipulate on your own to create custom views of your spacecraft or instrument
    - You can download the freeware application to view and manipulate the edesigns/edrawings CAD model here; it includes a link for Mac computers http://www.edrawingsviewer.com/
  - Thermal model in Sinda
  - Cost analysis model
    - Parametric cost models in Price H
    - A static snapshot of the cost model in Excel (i.e. it cannot recompute your cost if you edit the quantity fields in the spreadsheet)
- **All the documents and presentations the customer team provided during the course of the study**
- **Customer and instrument team attendance list**
- **Any photos taken of the whiteboards used during your study**
- **Any technically relevant emails exchanged during your study**

How to Use your Conceptual Design

- **The Instrument Lab is not responsible for any changes your customer team has implemented in the content of the Final Report, within the technical design, technical approach, or the cost estimate of your product**
  - It is our intention for your final product to mature with your team's direction following your study, but we cannot be responsible for the direction in which you take it, or for following up to reconcile any of those changes across engineering disciplines
  - If your team requires additional support, please contact the IDC Operations Manager to discuss your specific needs and see if specific discipline engineering support will meet your needs or if the team needs to be rescheduled for further study
  - The customer team is free to contact the cost modeler(s) that supported your study to recost the design that your team has modified

- **<u>If the Final Report, technical design, approach, or cost estimate has been altered by the customer team, we must insist that the IDL logo be removed from any documentation</u> of the new concept that your team handles, distributes, or presents as it is no longer consistent with the conceptual baseline design and we are no longer responsible for it**

Final Report Contents



Our Commitment to You

Integrated Design Capability / Instrument Design Laboratory

- **Our team fully discloses your design to the point of contact (POC) on the customer team**
  - It is our intent to provide you with all of the presentations, analysis, and models we used to create your design so that your team can not only understand your product, but also edit and mature the design
  - The customer point of contact is responsible for distributing that material to the rest of the customer team, in part or in whole as the nature of some material (e.g. labor rates) may be restricted to contractors or non-GSFC civil servants
  - If you feel that there is any content missing from your Final Report, please contact the Team Lead and we will burn a new Final Report CD for you
- **Our team safeguards your design**
  - We do not distribute your product to anyone outside of your customer team without permission from the point of contact for your team
  - In addition, everyone that supports the lab is bound by Nondisclosure Agreements that ensure your study information is handled confidentially
  - We have archived your final report on our secure, dedicated servers, and we have also archived a copy of your Final Report CD in a locked cabinet as a backup
- **We are committed to providing consistent products and is willing to support customer requests to clarify any questions or errors in our Final Report**
  - If there are errors or technical questions about your design, please contact the Team Lead and we will work to resolve those issues as quickly as possible
- **We are committed to meeting your expectations, and when that is not possible given the limited duration of your study, we note any outstanding issues in the Systems presentation within the Final Report**
  - The customer team is free to contact anyone on the attendance list for the study to request additional support outside of the lab – but that support needs to be negotiated with that engineer's supervisor

General Reminders

- **Mass model should be ready for costing by COB Thursday, May 3**
  - At that point we need all of purchase cost estimates
- **Cost results for the initial configuration will be available NET Wednesday, May 16**
  - Costing starts when the mass model is complete, and are available approximately 10-12 business days following the study
  - The cost results for the delta configuration will take at least another 5 days to model
- **The final report is provided following the cost presentation**

We Value Your Feedback

- **Please fill out your customer comment cards**
- **You can also email or call me after this study**
  - You can also contact Bruce Campbell/IDC Manager or Gabe Karpati/IDC Systems Engineer

What worked well this week in performing the study?

Is there anything we can improve?

Would you like to recognize anyone that made an outstanding contribution to the success of your study?

IDL Team

Integrated Design Capability / Instrument Design Laboratory

- Detectors - Carl Kotecki
- Electrical - Kenda Newton
- Flight Software - Kequan Luu
- Mechanical Designer - Dave Palace
- Mechanical Systems - Eduardo Aguayo
- Mechanisms - Dick McBirney
- Optical Systems - Peter Hill
- Parametric Costing* - Sharon Seipel & Sanjay Verma
- Structural Analysis* - Jeff Bolognese
- Systems - Scott Appelbaum & Martha Chu
- Team Lead - Tammy Brown
- Thermal - Mike Choi
- *Facilitators & IT Support - Carlos Dutan, Dawn Cathers & Henry Cao*

Consultants:

- Fiber Optics: Melanie Ott & Joe Thomes/562
- Mechanisms Control: Ken Lee/544
- Reliability: Aron Brall/300

New to the IDL

*these results will be presented at a later date as this analysis does not begin until the week following your study